

Energy Saving by Optimal Load Distribution in the Dehydration Tower Network

김정환, 이희석, 신학철, 한종훈*, 이우창¹, 이무호¹, 장천동¹
포항공과대학교 화학공학과; ¹삼성석유화학(주)
(chan@postech.ac.kr*)

Dehydration tower in the petrochemical complex is one of the energy intensive units. For a dehydration tower network which is composed of different types of columns including conventional columns and azeotropic columns, optimal distribution of feeds considering efficiencies of columns and related constraints have been made to reduce the total operating cost. Azeotropic tower requires less process steam compared with conventional tower in separating the feeds which has less byproduct composition, but shows unstable operation when the feed contains much impurities such as para-xylene or methyl acetate. Therefore optimal load distribution considering the operating cost and stability of the process is important. Operation monitoring system for dehydration tower network and optimization system were also developed using Excel based programming and Aspen-plus Simulator.